SANTA CRUZ BIOTECHNOLOGY, INC.

p-CPS2 (F-4): sc-377559

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The multicomplex protein, carbamoyl-phosphate synthetase-aspartate carbamoyl transferase-dihydro-orotase (CAD), consists of three distinct proteins, carbamoyl phosphate synthetase 2 (CPS2), aspartate transcarbamylase, and dihydroorotase, which catalyze the second and third steps of pyrimidine biosynthesis. CAD is allosterically regulated by the phosphorylation of CPS2 by cyclic AMP-dependent protein kinase, and this activation enables CPS2 to catalyze the rate-limiting step of pyrimidine synthesis. CAD is expressed in brain and skeletal muscle. A related protein, carbamoyl phosphate synthetase 1 (CPS1) is expressed in liver. CPS1 catalyzes the rate-limiting step in the urea cycle, and deficiency of CPS1 is an autosomal recessive disorder that causes hyperammonemia.

CHROMOSOMAL LOCATION

Genetic locus: CAD (human) mapping to 2p23.3; Cad (mouse) mapping to 5 B1.

SOURCE

p-CPS2 (F-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 447-460 Thr 456 of CPS2 of human origin.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-377559 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

p-CPS2 (F-4) is recommended for detection of Thr 456 phosphorylated CPS2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

p-CPS2 (F-4) is also recommended for detection of correspondingly phosphorylated CPS2 in additional species, including canine, bovine and avian.

Suitable for use as control antibody for CPS2 siRNA (h): sc-41457, CPS2 siRNA (m): sc-41458, CPS2 shRNA Plasmid (h): sc-41457-SH, CPS2 shRNA Plasmid (m): sc-41458-SH, CPS2 shRNA (h) Lentiviral Particles: sc-41457-V and CPS2 shRNA (m) Lentiviral Particles: sc-41458-V.

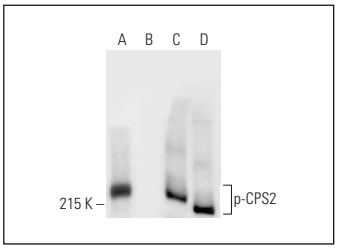
Molecular Weight of p-CPS2: 243 kDa.

Positive Controls: HeLa nuclear extract: sc-2120 or A-431 nuclear extract: sc-2122.

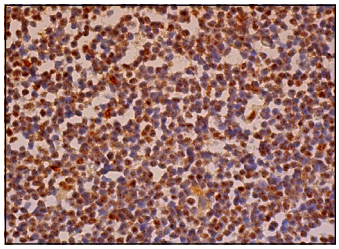
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Lambda Phosphatase: sc-200312A and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Western blot analysis of CPS2 phosphorylation in untreated (**A**,**C**) and lambda protein phosphatase (sc-200312A) treated (**B**,**D**) A-431 nuclear extracts. Antibodies tested include p-CPS2 (F-4): sc-377559 (**A**,**B**) and CPS2 (F-6): sc-376072 (**C**,**D**).



p-CPS2 (F-4): sc-377559. Immunoperoxidase staining of formalin fixed, paraffin-embedded human lymph node tissue showing nuclear staining of subset of non-germinal center cells.

SELECT PRODUCT CITATIONS

1. Ou, J., et al. 2019. ABHD5 blunts the sensitivity of colorectal cancer to fluorouracil via promoting autophagic uracil yield. Nat. Commun. 10: 1078.
2. Kim, D.H., et al. 2022. dTMP imbalance through thymidylate 5'-phosphohydrolase activity induces apoptosis in triple-negative breast cancers. Sci. Rep. 12: 20027.
3. Dsouza, L., et al. 2025. Vaccinia growth factor-dependent modulation of the mTORC1-CAD axis upon nutrient restriction. J. Virol. 99: e0211024.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.